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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/837,860 | 04/17/2001 | James F. Kramer | VTI013A | 7509 |

7590 05/21/2003

Immersion Corporation
801 Fox Lane
San Jose, CA 95131

EXAMINER

WU, XIAO MIN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2674

DATE MAILED: 05/21/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

12

Office Action Summary

Application No.

09/837,860

Applicant(s)

KRAMER ET AL.

Examiner

XIAO M. WU

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 11-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10 and 26-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 6-10, 26-28, 35-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Kramer (US Patent No. 5,184,319).

As to claim 6, Kramer discloses an apparatus, comprising: a deformable member (503, 501, Fig. 5D) having a first end (e.g. the leaf spring 503 near the support area 519, see Fig. 5A) a second end (e.g. outer edges of platform (501), and intermediate portion (e.g. the finger contact area of the deformable member 501, 503, see Fig. 5D and 5E), and a tendon (500, Fig. 5A, D, E) configured to displace the first end of the deformable member relative to the second end in response to a signal (e.g. a signal generated by an tendon actuator 300 as shown in Fig. 3, the intermediate portion associated with displacement of the first end of the deformable member (col. 11, line 55 to col. 12, line 16).

As to claim 7, Kramer discloses the deformable member (503) is leaf spring.

As to claim 8, Kramer discloses the tendon pass through a guide member (519) fixed to one of the first end and the second end of the deformable member.

As to claim 9, Kramer discloses the deformable member is configured to provide a controllable kinesthetic force (col. 12, lines 7-16).

As to claim 10, Kramer discloses the deformable is configured to provide a tactile sensation (e.g. providing an contacting force to the finger tip of the user).

As to claim 26, Kramer discloses an apparatus, comprising: an actuator (300, Fig. 3), and a force mechanism (Fig. 5D, 5E) coupled to the actuator, the forcing mechanism positionable on a support surface defining a plane (e.g. the support structure 519 holding the force mechanism on a defined plane when there is no force being applied to the finger as shown in Fig. 5D), the forcing mechanism including: a contact surface (501, 503); means for moving (500) the contact surface in a direction (e.g. bending upward of the deformable member 503 to contact the finger as shown in Fig. 5E) having at least one component outside of the plane surface (e.g. the bending area of the deformable member 503) in response to the actuator.

As to claim 27, Kramer discloses the contact surface is attached to flexible member (503, 501).

As to claim 28, Kramer discloses the means for moving includes a tendon (500) attached to an extremity of the contact surface.

As to 33, Kramer discloses that the means for moving includes an inflatable member (500).

As to claim 34, Kramer discloses the contact surface includes a multi-point contact surface (see Fig. 5E).

As to claim 35, Kramer discloses means for securing (519) the contact surface to an object able to receive the feedback force.

As to claim 36, Kramer discloses the contact surface includes a contact surface defining an opening to at least partially enclose an object (e.g. finger tip) able to receive the feed back force (see Fig. 5E).

As to claim 37, Kramer discloses means for moving includes a plurality of forcing mechanisms (see Figs. 4A).

As to claims 38, 40, note the discussion of claim 26 above. Kramer further discloses a computer (911, Fig. 9) for controlling the force feedback system.

As to claim 39, Kramer discloses a graphical icon such a hand or digit associated with the force feedback mechanism (col. 2, lines 8-28).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kramer (US Patent No. 5,184,319) in view of Burdea et al. (US Patent No. 5,354,162).

As to claim 29-31, it is noted that Kramer does not disclose that the means for moving includes a piston, or a threaded rod or a cam. Burden is cited to teach an actuator system provides force feedback for a hand similar to Kramer. Burden teaches that the actuator includes means for moving which are pistons (80a, 80b, 80c, Fig. 4) and piston rod (82a, 82b, 82c, Fig. 4). It would have been obvious to one of ordinary skill in the art to have modified Kramer with the feature of piston for moving a finger as taught by Burdea because it is an alternative way to use different mechanism for moving the finger. Further it would have been obvious to use cam as a moving means for moving a finger because the cam can substitute for the piston.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US Patents 3,263,824, 4,302,138, 4,414,537, 5,004,391, 5,086,785, 5,631,861, 6,088,017 and 6,110,130 are cited to teach a force sensor device.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

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(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington.
VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377

xw

May 14, 2002


XIAO WU
PRIMARY EXAMINER
ART UNIT 2674